NOTES ON THE WINTER FOOD OF THE SHORT-EARED OWL

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During the fall of 1930 there was an unusual influx of Short-eared Owls (*Asio f. flammeus*), to the dunes and marshes about the Savannah River entrance, making it possible to study the food habits in the light of several years general acquaintance with the territory and its winter residents, both mammalian and avian.

Sixty-eight pellets were collected at various times during the following winter, and forwarded to the Biological Survey for identification. These pellets contained the remains of ninety-six house mice (*Mus musculus*), and four rats of the genus *Rattus*, which were most likely the roof rat (*Rattus alexandrinus*), though the Norway rat (*R. norvegicus*), and the black rat (*R. rattus*), are also to be found in this territory. Thirty-eight birds had been eaten, of which fifteen species were identifiable, though seven birds could not be separated as to species.

The entire list of birds is sufficiently interesting to be included:

2 *Porzana carolina*	Sora
1 *Squatarola squatarola*	Black-bellied Plover
1 *Arenaria interpres*	Turnstone
2 *Actitis macularia*	Spotted Sandpiper
1 *Tringa solitaria*	Solitary Sandpiper
1 unidentified shorebird	
1 *Colaptes auratus*	Flicker
1 *Sphyrapicus varius*	Yellow-bellied Sapsucker
1 *Telmatodytes palustris*	Long-billed Marsh Wren
9 *Turdus migratorius*	Robin
1 *Regulus satrapa*	Golden-crowned Kinglet
5 unidentified warblers	
1 *Molothrus ater*	Cowbird
1 *Pooecetes gramineus*	Vesper Sparrow
1 *Junco hyemalis*	Junco
4 *Zonotrichia albicollis*	White-throated Sparrow
2 *Passerella iliaca*	Fox Sparrow
3 unidentified Fringillidae	

As these pellets were collected over the major part of the winter, and in various places, individual peculiarities in feeding were subduced and a truer average was obtained. It is very likely that the winter food presents a better index to the natural feeding habits of the species than might be obtained in the breeding season, particularly if

there should then be either a plenitude or scarcity of certain forms of life. Here there was a considerable choice of food to be had, and the extreme pressure of obtaining food for a nestful of growing young did not tend to introduce aberrant habits.

Daytime feeding was not the rule here. There was no evidence that flying owls in the daytime were otherwise occupied than in trying to find a peaceful spot to rest. When flushed the owls would fly around in their peculiarly erratic way, now high, then low over the sandhills, and occasionally one would light on the nearby mudflat, to the consternation of the small shorebirds feeding there. The sandpipers would fly much as before the Marsh Hawk (*Circus hudsonius*), but the alarm was not so infectious as that caused by the sight of a Pigeon Hawk (*Falco columbarius*), sweeping low over the grass tops.

All along the dunes the roof rats and the house mice had their dens, and were abroad at all times of the day and night. This was in the same places used as day resting stations by the owls. It would be expected that an owl would emerge from its day dreams occasionally to pick up a mouse that came too close, as other observers have usually regarded this owl as somewhat of a daytime hunter. But in the same places there were thousands of Savannah Sparrows (*Passerculus sandwichensis*), creeping under the bent grasses in search of seeds. That none of this species were found in the owl pellets—unless among the three unidentified Fringillidae—is good evidence that the owls did not feed on the ground in the daytime. And when returning from the marshes at evening, we did not see the owls taking up their hunt until nearly dark.

To better determine the feeding method, the possible hunting grounds for miles around could easily be divided into three habitats, viz., (a) the marsh, (b) the shore, and (c) the shrubbery. Only the last named needs any description, and it consisted of such shrubs as myrtle, groundsel tree, cassena, and prickly ash. These shrubs were from ten to twenty feet high, and harbored in the daytime many species of passerine birds.

Disregarding the unidentified birds, the other remains could be divided loosely according to the habitat, and it was found that:

(a) from the marsh were eaten four birds of three species, and no mammals,

(b) from the shore were eaten five birds of four species, and 100 mammals,

(c) from the shrubbery were taken nineteen birds of seven species, and no mammals.

In the thick grasses of the marsh lived the rice rats (*Oryzomys p. palustris*), and the owls had eaten none of these. And in the short thick grass between the shrubbery lived, in considerable numbers, the cotton rat (*Sigmodon h. hispidus*), and this species too, was absent from the pellets. While *Sigmodon* is pretty much of a diurnal species it still is a favorite food of the Barn Owl (*Tyto alba pratincola*), which hunts only at night, so it must be abroad then as well as in the day.

In the shrubbery were many species of birds not eaten by the owls at all, according to the evidence. It was the unusual proportion of Robins that held the clue to the species taken from this habitat. It is well known that the Robins roost in the bare branches at night, and the owls must have done quite a bit of hunting over these places. To find the warblers, the woodpeckers, and the kinglets there does not seem unusual, but one might be a little surprised at the Fox Sparrows and White-throated Sparrows going to bed in the upper branches, after spending the day on the ground underneath. The thrashers, catbirds, and cardinals, all very common among the shrubs, seemed to have safer roosting habits, at least in this case.

So we have the picture of the owls hunting over the shore and mudflats, the open places in the marshes, and in the top of the bare branches. All of the shore and marsh birds might easily be found out in the open, or resting on the beach.

In the general economy of nature this is a satisfactory and successful species. Its wide range of food allows it automatically to accept the commoner or more easily captured kinds, and prevents it doing too much harm to a depleted species, except perhaps in the case of a seasonal concentration. And with its wide breeding range, it has great stability.

But when one comes to the economy that deals with credits and debits of value to humanity alone, an entirely different set of factors is introduced. And by the evidence of this study, we find the Short-eared Owl killing far too many beneficial and harmless birds to be given an entirely clear bill of health.

Further, we should not expect to find the species of much value in reducing a plague of small rodents, living in thick cover—*Microtus*, for instance—if the feeding habits are as this study shows. Fortunately other observers have found much different habits.

U. S. Dredge "Morgan".
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